

Engineering Institute Lecture Series

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Wind Turbine Engineering R&D at Los Alamos National Laboratory

Tuesday, November 6, 2012
3:30 - 5:00 PM

TA-3, Bldg 207 (J. Robert Oppenheimer Study Center), Room
218 (Jemez/Cochiti)

Abstract: There are enough wind resources in the US to provide more than 10 times the electric power we currently use, however wind power only accounts for 3% of our total electricity production. DOE's goal is to increase wind power capacity to 20% of the total by the year 2030. LANL's Intelligent Wind Turbine (IWT) Project is applying leading-edge engineering expertise in modeling and simulation, experimental validation, and advanced sensing technologies to challenges faced in the design and operation of modern wind turbines. DOE desires to reduce wind power costs through technological innovation and reliability improvements. LANL's engineering expertise, which is well-suited to the wind energy application, is born out of the Laboratory's core national security mission. This talk will provide an overview of the engineering R&D performed for the IWT program, including the ability to visualize detailed flowfields around operating wind turbines, the capability to simulate multiple wind turbines on any terrain, and the ability to detect incipient damage in operating wind turbine blades.

Biography: Curtt has Bachelor's and Master's degrees in Aerospace Engineering from Purdue University and a Ph.D. in Mechanical Engineering from the University of Texas at Arlington. He worked for seven years in the aerospace industry before coming to LANL as a post-doc in 1998. He has worked in experimental and analytical R&D on a wide variety of engineering programs including high-field research magnets, liquid metal flow loops, and coil guns. He has received five LAAP Awards, two team awards, one individual LANL Distinguished Performance Award, and the Department of Energy Secretary's Achievement Award.